

## Uses and perceptions of forests by people living in urban areas – findings from selected empirical studies

### Waldnutzung und Waldwahrnehmung der Bevölkerung in städtischen Gebieten – Ergebnisse ausgewählter empirischer Untersuchungen

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#### Summary

The paper is based on a selection of empirical studies undertaken in Switzerland, Germany and France on the social meaning of forests. Relevant results from this research are used in order to discuss the intensity and variety of urban forest uses; to give indications about preferred forest areas and about the ways and means to reach them; and to analyse the motives of visitors as well as the meanings that the public attributes to forests. The findings, based on a limited number of specific cases, give an indication with regard to the intensity of use and the range of statements about perceptions associated with forests. The conclusions examine the relevance of applied social research to multipurpose forest management, that reacts to changing demands of the public.

**Keywords:** Urban forests; forest management; perception of forests; empirical social research; urban development.

#### Zusammenfassung

Grundlage des Beitrags ist eine Auswahl empirischer Untersuchungen zur gesellschaftlichen Bedeutung von Wäldern, die in der Schweiz, in Deutschland und in Frankreich durchgeführt wurden. An Hand der vorliegenden Ergebnisse werden Intensität und Vielfalt der Nutzung in Stadt nahen Wäldern, der Zugang zu bevorzugten Gebieten, mögliche Motive der Waldbesucher sowie die Bedeutung von Wäldern für die Öffentlichkeit vergleichend dargestellt. Insgesamt gibt die Auswertung der Ergebnisse der Untersuchungen einen Anhalt zur Beurteilung von Umfang und Art der heutigen Erholungsnutzung in Wäldern sowie der unterschiedlichen Formen der Perzeption ihrer Bedeutung durch die Waldbesucher und Bürger im Bereich der Städte. Die Folgerungen erörtern die Relevanz angewandter sozialwissenschaftlicher Forschungsbeiträge für eine multifunktionale Bewirtschaftung von Wäldern, die sich den verändernden Bedürfnissen der Öffentlichkeit anzupassen vermag.

**Schlüsselwörter:** Stadtwälder; Waldbewirtschaftung; Waldperzeption; empirische sozialwissenschaftliche Forschung; Stadtentwicklung.

### 1 Overview of empirical research on the social significance of forests

*What people do can often be observed: what is going on in their thoughts cannot always be stated with certainty.*

In order to discuss the social significance of forests within and around cities it is essential to understand not only their importance concerning human activities but also the many different ways in which they are perceived by the citizens. The first aspect refers primarily to forests as part of the urban space used by different groups of people for a wide variety of purposes. In addressing possible perceptions issues are raised such as what forests represent in the minds of people living in cities, what emotional values they associate with them, and what relevance an urban forest has to daily life.

Empirical social research is based on a broad range of different scientific disciplines: sociology, anthropology, social psychology, economics, political sciences, etc. The common ground is inquiry into different processes in society. Each of the disciplines of social

sciences has its own point of view and favours specific methods for approaching the topic under investigation. For this reason, the insights which can be obtained from the various disciplines differ.

To determine frequencies of forest visits or individual motivations and perceptions requires empirical data that can be obtained by observation or by interviewing. Whether the first or the latter is adequate to a research problem depends on the specific questions to be asked (DIEKMANN 1995). How collected empirical data should be analysed is another crucial issue. For activities and well-known modes of perception it is often appropriate to count them. When texts are to be analysed, this can be done by counting particular features or by understanding or reconstructing expressed meanings (DENZIN and LINCOLN 1994).

A recent research report offers a systematic review and thematic analysis of empirical studies undertaken in Austria, Germany and Switzerland between 1960 and 1995, which deal with behaviour, perceptions and attitudes regarding forests and their social benefits (SCHMITHÜSEN *et al.* 1997a, 1997b, 1998a). Sixty-three studies were scrutinised. An examination of the motives and research issues reveals a wide range of research themes and considerable differences in methodology. Economic issues, land use planning or socio-cultural aspects may have been the reason for launching the particular projects. The different research profiles have produced a variety of findings on forest uses and people's perceptions of forests. Most of the studies focus primarily on recreational activities and the frequencies of particular perceptions. The broader context of individual existence in urban spaces, for example, is usually not the subject of the investigations that have been undertaken so far. Nineteen of the studies focus on the relationship between the people and forests in urban areas. Several others include urban and periurban forests, though on a countrywide or regional basis. One example is a representative survey among the population of Switzerland, conducted in 1979, which allows analysis of the differences between urban and rural areas (HERTIG 1979).

In the meantime, additional empirical information has become available, in particular from two fairly large projects in Germany (ELSASSER 1996a, 1996b, OESTEN and RÖDER 1995). A recent qualitative empirical research on perception of forest and nature has been published by BRAUN (2000). In Switzerland a new comprehensive study on public perceptions of forests in mountainous regions is available (SCHMITHÜSEN *et al.* 2000, ZIMMERMANN 1996, ZIMMERMANN *et al.* 1996). The findings relate to quantitative and qualitative data on forest perceptions as well as opinions on forestry and forest policy issues in six German- or French-speaking Cantons in the mountain regions of the country (ZIMMERMANN *et al.* 1998). For the whole of Switzerland a survey on forest-related perceptions, demands and expectations has subsequently been undertaken (DIEKMANN *et al.* 1996, BUWAL 1999, SUTER THALMANN 2000). This study has been designed in a manner which allows to combine the findings on forest with results of the regular census on environmental problems. It is at present one of the few investigations that provides representative data on perceptions and attitudes towards forests for a whole country. A comparison of the two Swiss studies with regard to methodology and issues has been made (WILD-ECK and ZIMMERMANN 2000).

Research on social aspects of forests and forest uses has a long-standing tradition in France (BAILLON 1975, CORVOL *et al.* 1997, KALAORA and POUPARDIN 1979, KALAORA 1981, MATHIEU and PRAICHEUX 1986, LAFITTE 1993). A more recent study is the one undertaken by DUFOUR and LOISEL (1996) on opinions concerning environment and forest. Denmark is another country which had initiated empirical research on forest perceptions (JENSEN 1993, JENSEN and KOCH 2000) in order to use the results for recreation and landscape management. Two studies by ROČEK (1997 and 1999) show that inquiries on the social significance of forests to the public and to forest owners after restitution of property have gained importance in countries in transition to market economy. JACOBSEN and KOCH (1995) have listed a considerable number of research activities in the European

region which mainly address forest owners' attitudes. Two collections of articles edited by TERRASSON (1998) and WIERSUM (1998) provide more detailed information on the scope and methods of research on public attitudes towards forests in some of these countries.

For this Contribution we have selected eleven out of the mentioned sixty-three studies focussing on the context people – forests – city. Criteria for the selection are whether the studies are empirical, and whether they exhibit a variety of methodological approaches (SCHMITHÜSEN and WILD-ECK 1998b). As an interpretative grid five categories of findings are used to elucidate the following points:

- Frequency of individual visits to the forest
- Means of transport to the forest area
- Duration of forest visits
- Activities in the forests and motives for the visit
- Meaning of forests to the individuals

The research questions related to the first four points concern mainly quantitative issues. Frequencies of certain behaviours and distribution over different perceptions are asked. This reflects the dominance of countable aspects of investigations that can be found in the available publications on uses in urban forests. The fifth point, addressing the meaning of forests focuses on individual construction of reality and refers to investigations in which the researchers have tried to find a key to a better understanding of laymen and -women in their relations to urban forests. This is, for instance, the approach of WILD-ECK (2000), who puts the question of the role and importance of nature and forests into the context of life quality for urban people. He can show why the relevance of natural spaces and forests in the general public agenda is often underestimated and why on the other hand individuals or institutions related to the forests often overestimate their importance.

Given the selected eleven studies as the empirical material for a comparative analysis (Table 1), it has to be borne in mind that this approach has its limitations. To define the full

*Table 1.* Selected studies on people's uses and perceptions of forests.

*Tabelle 1.* Ausgewählte Untersuchungen zu Nutzungen und Wahrnehmungen des Waldes durch die Bevölkerung.

Author and Year of Publication
Translated Title of the Study (Original Language)
Location, Country
GASSER, 1997: Activities of Communal Forest Administration as perceived by Forest Visitors. (German), Liestal, Switzerland
ELSASSER, 1996a: The Recreational Value of the Forest. Monetary Valuation of Recreational Benefits of Selected Forests in Germany. (German); Hamburg Region and Pfälzerwald, Germany
ELSASSER, 1996b: Structure, Motives and Expectations of Forest Visitors – An Empirical Studie in the Hamburg Region. (German); Germany
SCHMITHÜSEN and KAZEMI, 1995: Analysis of the Relationships between the Attitudes of People Towards Forests and their Attitudes towards Forest Management. (French); La Chaux de Fonds, Switzerland
LAFITTE, 1993: Opinion Poll on Periurban Forests. (French); Urban areas with more than 100'000 inhabitants, France
NIELSEN, 1992: The Value of Periurban Forests as Recreational Space – An Economic Analysis using the Example of Lugano. (German and Italian); Lugano, Switzerland
SCHULBERT-SYFRIG and MAGGI, 1988: Valuable Environment – An Economic Science Contribution to Environmental Valuation in the City and Agglomeration of Zurich. (German); Zurich, Switzerland
MATHIEU and PRAICHEUX, 1986: The Frequency of Visits of the Forest of Chailluz. (French); Region of Besançon, France
KARAMERIS, 1982: Analysis and Prognosis of Recreational Demand in Forest as a Contribution to Land Use Planning. (German) Munich Region, Germany
LOESCH, 1980: Typology of Forest Visitors - Examination of a Population Cross-Section according to Visiting Habits, Visiting Motives and Attitude towards Forests. (German); Germany
BAILLON, 1975: The Frequency of Visits to Forests (French); Paris region and other urban areas, France

range of their specificities would basically entail an examination of the initial motivation for each study, its topics and objectives, the sampling techniques employed, and the data collection and processing procedures (WILD-ECK, forthcoming). For this kind of information we refer to the more detailed review of the studies presented in the research report from which the information has been chosen.

## 2 Frequency of visits to forests, length of stay and means of access

*I never go to the forest, because that is something only elderly people do.*

Recreational behaviour and people's motives for visiting or not visiting forests should be viewed within the broader context of changes in life style and working conditions (LAMP-RECHT and STAMM 1994). Increasing leisure time has generated a variety of outdoor activities in forests and the open countryside, with increasing pressure on natural habitats and ecosystems within and outside dense settlements. It has led to the necessity of planning recreational uses and of establishing specific management arrangements (AMMER and PRÖBSTL 1991).

The question of how often people visit the forest was one of the earliest and most popular research subjects in this field. Counting visitors at entry points or at sites of general interest has become current practice for forest services and research institutes. It is easily done and furnishes immediately available results. However, the collection of empirical data in target areas is systematically biased since it excludes people never or rarely visiting forests and favours those who are regular visitors. If the results are not weighted with correction factors, the findings tend to overestimate the numbers and frequency rates of forest visitors. To avoid such bias, it is necessary to conduct representative investigations covering the whole of the population. Some of the studies followed this approach and produced a more comprehensive set of information.

Since we use the studies considered in disassociation from the areas in which they were actually conducted, we have to point out that findings refer primarily to the given research location. In effect, this means that findings from Stuttgart should not be unreservedly transferred to Hamburg, nor those from Zurich to Warsaw or Prague. Yet the results from one city may give indications for another. If the findings on a particular question are similar in different places, then a transfer to comparable situations may be admissible. Despite considerable variations in locality, research approach and objectives, the results from the studies scrutinised reveal a fairly consistent picture.

Slightly less than one third of the population visits the forest at least once a week, slightly more than one third at least once per month, and the remaining third of those registered goes very rarely or not at all. Table 2 presents the frequency rates of forest visits as esti-

Table 2. Frequency rates of forest visits in urban and periurban areas.

Tabelle 2. Waldbesuchshäufigkeiten in städtischen und stadtnahen Gebieten.

Author of Study Year of Publication, Page	Daily or at least Weekly Visits	Weekly or at least 1 visit per Month	Less than 1 visit per Month
LÖSCH 1980, p. 89	24%	44%	32%
ELSASSER 1996, p. 3	18%	53%	29%
NIELSEN 1992, p. 97	51%	23%	26%
LAFITTE 1993, p. 486	24%	28%	48%
KARAMERIS 1982, p. 64 <sup>a</sup>	19%	38%	43%
GASSER 1997, p. 4	29%	45%	26%

<sup>a</sup> The figures from this study are not completely comparable with the other studies considered, as it analyses the frequency rates of visits solely in one particular major recreation forest and not the total of all forest visits. The results possibly underestimate the number of annual visits per persons.

mated in six studies carried out in various countries, under different conditions and over a rather long time span. The mean annual frequency of visits per person was estimated by ELSASSER (1996b) at 64 visits, and by SCHELBERT-SYFRIG and MAGGI (1988) with 78. The findings of BALLION (1975) in France differ somewhat from those presented in Table 1, the frequency rates determined being: weekly 3.5 %, monthly 14 %, and few or no visits 82.5 %. It is an open question whether these differences are due to the fact that the study was conducted back in the seventies or to the circumstances under which it was undertaken.

In explaining the differences in such findings, several factors have to be taken into account. Cultural variations do influence not only uses, perceptions and attitudes towards forests, even if the findings of some studies in France, Germany and Switzerland furnish a somewhat uniform picture of individual frequency rates (ELSASSER 1996b, LAFITTE 1993, SCHELBERT-SYFRIG and MAGGI 1988). There are probably on-going developments involving an increased demand for open-air recreation which need to be investigated in more detail. Further, differences in research design and data collection influence the findings.

The distance people have to travel to reach forests and restrictions on accessibility are major factors influencing frequency rates of visits to forests in urban areas. ELSASSER (1996b) found that the proportion of forest visitors having to travel less than 5 kilometres to reach their goal was 60 % and NIELSEN (1992) gives a proportion of 73 % for a similar distance. KARAMERIS (1982) and BAILLON (1975) indicate that the distance between home and visited area is an important prediction factor for individual numbers of forest visits. What really determines the possibility of regular visits is in fact the average travelling time needed to reach the nearest forest area. ELSASSER (1996a) computed that 75 % of forest visitors had to travel less than 20 minutes. On the whole the conclusion appears to be fairly pragmatic and obvious: the closer a forest to the residential area, the more frequently it will be used by the citizens and the higher the individual frequency rates for leisure and recreation. This is a strong argument for the importance of forests, even if they are comparatively small, close to dense housing areas. It is also an important reason for the strict conservation of forests as part of a mosaic of urban and periurban zones.

The question of how people get to forest areas has been examined in several publications (Table 3). The majority of visitors, at least included in the studies considered here, journey by car with a variation of 40 % to 80 %. Another group of visitors go the forest on foot with a variation of 10 % to 30 %, or by bicycle with a variation of 5 % to 40 %. Public transport is of little importance since only between 3 % and 8 % of the visitors come to the forest by such means. The observation that the second largest group are pedestrians or cyclists, once again emphasises the importance of the distance between living areas and the nearest forest. Topography, time budgets, children as visitors and public transport facilities may be other factors needing to be taken into account. Culturally determined patterns of mobility probably also play an important role. As far as the findings discussed here are concerned, these factors seem to enhance the proportion of private transport by car. It would be interesting to investigate to what extent this situation is applicable to cities with a well developed public transport system.

Table 3. Means of transport to the forest visited.

Tabelle 3. Transportmittel zur Erreichung des besuchten Waldes.

Author of Study Year of Publication, Page	Private Car	Public Transport	Bicycle	Pedestrian
ELSASSER 1996, p. 140	46 %	8 %	18 %	28 %
KARAMERIS 1982, p. 58	37 %	3 %	42 %	17 %
LAFITTE 1993, p. 485	64 %	3 %	4 %	27 %
MATHIEU 1986, , p. 69	85 %	few	ca. 6 %	ca. 6 %
BAILLON 1975, , p. 162	83 %	4 %	2 %	11 %

Some indications have been given on the average duration of individual visits, which vary with the specific motives of people coming to the forest. ELSASSER (1996b) states that in the forests around the city of Hamburg half of the visitors stay in the area for up to one hour, the other half longer than one hour. The findings of NIELSEN (1992) show that the duration of a visit to the forest in the vicinity of Lugano is, on average, considerably longer. Slightly more than 20 % of the visitors spend up to one hour in the forest area, whereas approximately 80 % remain at least one hour or more.

The frequency and duration of visits vary during the week, depending on the weather and the time of year. There is a characteristic increase of visitors during weekends, and on certain days of the week. Seasonal variations were investigated by KARAMERIS (1982) and his findings indicate that in urban forests these variations are rather small. The study by SCHELBERT-SYFIRG and MAGGI (1988) shows similar results for the urban forests in Zurich. Comparing the seasons, they found that there were only 17 % less visitors during winter than during summer. The results of both studies demonstrate that visits to urban forests are part of daily life for many citizens, and that they do not vary greatly with the time of year. This situation differs from that regarding seasonal variations in visitors to forests at a considerable distance from cities and in touristic regions. KARAMERIS, in his study of 1982, analysed seasonal variations in the Bavarian Forest National Park. Considerable fluctuations were also found by OESTEN and ROEDER (1995) in their study on recreational uses in the Palatinate Forest region.

According to LOESCH (1980) the visitor frequency rate of people without children, people over 60, those in low income groups or with little formal education, those without a car, and people living more than two kilometres away from the nearest forests tends to be below average. BAILLON (1975) states that young people up to 25 and older people over 55 go less frequently to the forest than the age groups in between. Families with children as well as people with a higher formal educational background visit the forest more often. These findings, based on observations in Germany and in France, are fairly comparable among one another. Several investigations included the question of whether people go individually or in company to forest areas. KARAMERIS reports that 38 % of the visitors went alone, with a higher percentage (ca. 50 %) during the week and a considerable lower proportion (ca. 25 %) during weekends. The studies of MATHIEU (1986) and LAFITTE (1993) indicate a higher proportion of people visiting forests in company. According to LAFITTE young people and those pursuing sport are more often found to be alone. One of the reasons some people are hesitant to go alone to a forest area may be fear. LOESCH (1980) found that feeling apprehensive was mentioned by 10 % of people living in the areas he investigated. The percentage was higher among women, at 15 %. Feeling afraid or at least uncomfortable in a forest may result in not visiting it at all or only in company.

### **3 Activities of forest visitors and information on motives for their visits**

Information on the reasons for people coming to the forest may be obtained by observing their activities and by asking them why they have come. ELSASSER (1996a) found that 86 % of the visitors had come for walking, in the sense of going out for a stroll, or hiking; 11 % were cyclists, and 3 % were joggers or pursuing other activities. LAFITTE (1993) asked people for answers to a questionnaire with eight pre-defined optional activities and established the following proportions: walking 80 %, observing nature 55 %, leisure and relaxation 40 %, sport activities 20 %. MATHIEU (1986) reported walking as the major activity, as did KARAMERIS (1982) who differentiated between walking, bicycling and observing nature.

GASSER (1997) worked with four pre-defined and one open interview categories and also found walking to be the dominant activity, followed by sport activities. He mentions a linkage between the frequency of visits and the type of activities. Under the circum-

stances in which he conducted his investigation, those interested in observing nature or practising a sport visited the forest more frequently. A considerable proportion of people coming for a walk did so only occasionally or seldom. Another aspect which has been discussed by KARAMERIS (1982) and by SCHELBERT-SYFRIG and MAGGI (1988) is the variation of forest visits during periods of the day. For instance, visitors coming for walking prefer morning or afternoon hours and their visits are distributed over a longer time span than those of persons coming for practising sport.

The studies from Germany on uses in urban and periurban forests mention bicycling as an important activity. This was not observed in comparable studies from Switzerland, even though the number of mountain bikes has increased during the last years. This can probably be explained by such differences as settlement structure, topography, density of access and of forest roads. It may also be due to different access regulations for bicycles in forest areas. Another variation emerged from a review of studies in France which mention picnicking as an activity, whereas this is not the case in the German-speaking reports. The difference may be a sign of cultural variations in activity patterns. It may also be an indication of different habits associated with visits to the forest.

Altogether, the available studies identifying the range of activities of forest visitors show that the majority of people in the cities who come to the forests do so to have a walk for leisure and to observe nature. Sport activities, bicycling or horse riding are important motives as well, but they are practised by smaller and well-defined groups of the population. As a consequence, one can find a functional pattern of recreational uses in a given forest area, with the majority of visitors walking along forest roads and foot paths which they know and to which they are accustomed. On the other hand smaller areas, usually on the edges of the forest, attract large numbers of people and show changes in uses in the course of the day and the week as well as with the seasons. The effects of clustering and rapidly changing frequency rates may be well observed in forest areas with a historical or cultural significance, and particularly at places that have been equipped with playgrounds, picnic areas or with facilities for sport. None of the studies mentions activities of youth groups. It remains open whether this is due to the samples, to the questionnaires, or to the fact that such activities tend to be concentrated during few hours of the weekend. It is also striking that neither forest pedagogy nor school children activities in and related to the forest have been mentioned, in spite of the rapid evolution that has recently taken place in some cities of Germany and Switzerland.

Using observations and interviews as a basis, efforts have been made to explain the motives of people who come to the forest. One of the first classifications has been proposed by LOESCH (1980) identifying as possible motives the need of people for recreation in a (relatively) quiet and uncrowded environment on the one hand, and on the other for active movement in the open air. MATHIEU (1986) confirms that a high proportion of the population (43 %) comes to the forest for relaxation and easing of tension. The study of LAFITTE (1986) is more explicit, indicating love for the forest (45 %), getting a deep breath of fresh air (50 %) and practising particular activities (5 %) as the principal motives of forest visitors. ELSASSER (1996b) identifies three categories of dominant motives which are "to be close to nature", "clean air" and "health".

Diverging from observations on alternative activities in forests and on the potentially competitive interests of user groups, research has been undertaken on the tolerance of visitors towards various user practices. LAFITTE (1993) included the question as to whether the visitors are rather in favour or against a pre-defined set of activities and reports the following information. The tolerance rate for horse riding and mountain-biking was over 70 %, camping was acceptable to 40 % of the respondents whereas hunting, motocross and all-terrain vehicles met with much less tolerance (Table 4). In a current representative survey on public opinion towards forests in Switzerland (BUWAL 1999) 82% of the respondents expressed that they do not feel disturbed by activities from other visitors. People indicating a certain degree of disturbance usually refer to bicycle riding or to dogs.

Table 4. Opinions expressed on different activities in forests.

Tabelle 4. Meinungsäußerungen zu unterschiedlichen Aktivitäten in Wäldern.

Activity	rather in favour	rather against	do not know
Horse riding	82%	16%	2%
Mountain-Biking	71%	27%	2%
Camping	39%	59%	2%
Hunting	16%	81%	3%
Motocross	13%	85%	2%
All-Terrain Vehicles	12%	86%	2%

Source: LAFITTE 1993, p. 488

Table 5. Empirical data and information used by LOESCH for the elaboration of typological profiles of forest visitors.

Tabelle 5. Empirische Daten und Informationen zur Ausarbeitung typologischer Profile von Waldbesuchern nach LOESCH.

Socio-demographic Data	Information on Activities Practised
Sex	Walking
Age	Hiking
Income	Sport Activities
Formal Education	Playing Activities
Children up to 18/Household	
Ownership Private Car	Information on Motivations
Number of Inhabitants/Community	Recreation
	Freedom
	Contemplation
	Nature
	Meditation
Data on Visited Forests	
Distance to Nearest Forest Area	Information on other Aspects
Observed Interests (Activities)	Fear in the Forest
Frequency of Visits	Social Events
	Need for Silence

Source: Extract and Adaptation from LOESCH 1980, Tab. 77, p. 145

Further research is needed before a more general view on this subject may be formulated. This is particularly true of attitudes towards hunting, which need to be analysed in the broader context of public perceptions regarding wild life and nature conservation. The views expressed by different respondents vary within distinct cultural settings probably to a considerable extent. Such views may also have changed during the last 30 years.

In his comprehensive study LOESCH (1980) made an attempt to develop a typological aggregation of forest visitors. Following earlier approaches in recreational research to identify typical activity patterns and specific user groups, he carries out a cluster analysis using socio-demographic data, information on distance to the forest, frequency rates of visits and activities, and information from the respondents on their motives and emotional environment (Table 5). The focus of the classification is activity-oriented in order to show the variety of possible uses of the forest space by different categories of people and to derive conclusions for group-specific recreational facilities. LOESCH identifies seven typological profiles which again may be classified into three broad categories of visitors; they reveal different recreational demands and distinct perceptions of the forest. The first category comprises those to whom the existence of forests and nature is an important value in itself. For the second category the forest is primarily open space in which they move freely and practice a range of personal activities. The third category, identified from the typological profiles, is formed by people who apparently do not have a particularly pronounced interest in forests but nevertheless come to visit them. There are probably other reasons, for instance that these persons come with relatives and friends, that were not revealed by that particular research design.



SCHELBERT-SYFRIG and MAGGI (1988) proposed four typological profiles of forest visitors within the broader research frame of their study, which focuses on environmental perceptions and economic valuation of forest recreation in the city of Zurich. They identified a first group of visitors to whom forests are of considerable emotional importance and with a high value for the quality of life. One notable observation in this context, important in the debate on possible financial contributions from visitors to forest management in urban areas, is the following: It is that group of people who value the forest highly as raising the quality of life who seem least ready to pay for its recreational uses and values. A second group consists of people who visit the forest primarily as an open space for sport activities. The remaining two groups include first, people living close to the forest and coming regularly for a short walk (often with dogs) and secondly visitors with a higher than average need for security and orderliness when they are in a forest area.

Out of the various findings and indications concerning motivations for forest visits and visitor typologies a model with two general dimensions can be identified. The first dimension of the model is goal-oriented: What are the aims of the individuals, how do they express this and why do they come to the forest? This dimension is nominal and comprises three distinct categories. One category includes individuals who want to express their feelings and personality and show a markedly extrovert orientation. Another comprises people with a mainly purpose-oriented attitude in using the forest as a space for specific activities. The third category consists of visitors to whom the forest is, more than to others, a representation of personal values and reflections and who show an orientation towards introspection. The three categories are of relevance to urban forestry and in particular to forest planning. Individual expectations and demands regarding management practices and infrastructure may depend on them. An expression-oriented person has other expectations than an introspection-oriented one. A purpose-oriented individual has demands which differ from those of the two other groups.

The second dimension of the model is a continuous one and uses general interest in forests as its central focus. Here one can differentiate between (expressed) interest in the visited area and little or no interest. This is, for example, of relevance when forest-related information is to be communicated; different information strategies are needed when considering people with great interest in forests as opposed to those with little interest (PETTY and CACIOPPO 1984). To what extent the activities and expectations of an individual may be grouped under the various combinations requires thorough investigation. If a jogger may appear to be an expression-oriented person, it may well be that he or she perceives this activity as a means for introspection and meditation. Thus it may be difficult to draw conclusions about individual motives solely from the activities observed.

This kind of analytical reduction of multiple findings down to two dimensions allows a positioning of individuals in a two-dimensional field, which reduces the complexity of the topic to a manageable level. However, one has to be aware that in many cases a whole range of considerations could be relevant, with mixed or transitory stages between various motives. The distinction between people with expressed interests in forests and those with little interest may be valid within a given context and at a certain moment. But interests may vary with changing conditions and time.

Many people have a variety of demands and often practice a number of different activities. They may come for a walk but sometimes also on their bicycle. They may need a space for reflection and practice sport at the same time, they may observe trees and animals or collect mushrooms when they are there. This given, one has to be aware that identifying various user groups and elaborating typological profiles of those visiting forest area are useful but nevertheless simplifying exercises. To forget that individuals have varying motivations and interests to come to a forest and that they may show different expectations at different times bears with it the danger of overlooking important explanatory factors and drawing conclusions which are too simplified. More research is required in order to identify individual combinations and variations of activity patterns and their effects on the recreational importance of forests in cities.

#### 4 The meaning of forests to people

*"The forest is important because it is there."* (Mrs W. from Zurich)

*"There may perhaps still be a wolf in the forest Eilenriede"* (Florian, 6 years old)

Forests mean different things to different people. As reflected in the two quotations they may be important because they exist or because they leave room for something unexpected. This is at least what Florian believes when he comes with his parents to the Eilenriede forest in the city of Hannover.

The meaning of a forest is reflected in human perceptions and attitudes which are culturally moulded (HARRISON 1992, SEELAND 1993, 1997). Societies have developed their own notions of what forests mean to them. In the cities today, forests are an important part of the urban space for leisure and for many personal activities. They are considered of importance with regard to climate, clean air, fresh water and oxygen production. They provide wood as a renewable resource and a wide range of protective and social services.

Forests have still another meaning in modern societies (SCHMITHÜSEN 1996, 1999). They are a representation of nature, which is supposed to be largely free from human activities or left in its original state. They represent a region of wilderness which seems to be different from the intensively used urban area. For many people, forests are important as a place for recollection, for contemplative reflection and a feeling of personal freedom. The contrast in the views on forests as a means of production on the one hand and as a particularly valued element of the physical environment on the other is a significant aspect in urban areas.

Social and political opinions on forests may refer to a much broader range of issues than only their recreational uses. They relate to the perceptions of people on forests as natural surroundings, their attitudes towards forestry practices and conservation, and their opinions and demands on how the forests should be managed. The underlying research issue is the need for a better understanding of motives and activities. What matters is the opinions of individuals and different groups and their general views on forests and forestry. Empirical research designs should consequently involve all segments of the population (NICOLE and SEELAND 1999). Broader studies investigating the perceptions and attitudes of those who rarely or never visit forest areas are not yet available.

Some research contains information on the importance of trees, natural areas and forests in personal life (BUCHANAN et al. 1981, LOESCH 1980, GASSER 1997, SILVA 1997). BUCHANAN et al. show, for instance, that belonging to a particular social group considerably influences the individual's perceptions of nature and of forests. The meaning which forests and forestry practices may have to an individual varies in relation to the contextual setting. It is not a constant element as implied in some investigations.

Research on personal patterns of perceptions and attitudes and the resulting general aspirations towards forests requires more than counting predefined features. The detection of meanings and the reconstruction of structures should be another aspect of investigation. The social-psychologically oriented study of WILD-ECK (2000) is, for instance, an investigation where the counting of predefined features is combined with the detection of meanings and the reconstruction of structures in individual statements.

Another example of this mode of research is a study based on in-depth interviews with 15 inhabitants of the city of La Chaux-de-Fonds (SCHMITHÜSEN and KAZEMI 1995). It identifies different perceptions of forests:

- as space with little urban influences;
- as space of sensuality with beauty, variety, colours and aromas;
- as space of spirituality for well-being and introspection;
- as mystical space representing nature and protected life;
- as a symbolic space for the genuine, the fundamental and the origins.

Table 6. Perceptions of forests as identified in different research reports.

Tabelle 6. Wahrnehmung von Wäldern nach Angaben verschiedener Forschungsberichte.

Space for Movement /Exercise	Space for Retreat
Space for Activities	Love for the Forest.
Space for Breathing Air	Symbol of Origin
Space for Clean Air	Mystical Space
Space for Health	Sensual Space
Space for Relaxation	Spiritual Space

Source: Based on 12 motives as indicated in LOESCH (1980), LAFITTE (1993), ELSASSER (1996b) and SCHMITHÜSEN and KAZEMI (1995)

An interesting finding of the study is that a person's general views on forests guide his answers to questions concerning forestry practices and management. The investigation of the forestry-related perceptions and attitudes of the general public should consider this aspect by exploring the individual's view and the implicit meaning of forest in his thinking, behaviour, and daily life.

The studies included in our analysis to identify the perceptions of people towards forests and their motives for visiting forest areas usually combine quite different, emotional, cognitive and conative elements. The findings (Table 6) show two major perspectives in which forests in urban areas are perceived. They are a part of the city with little external influence and a free space which allows free movement. And they are a representation of nature with its own identity and value in its existence, representing beauty, spirituality and symbolic associations. The meaning of forests thus includes both a variety of uses in daily life as well as values of personal reflection and identification.

On the whole, the available publications offer ample information on the activities and possible motives of visitor's, and confirm the importance of forests as a valuable recreational space within and around cities. But there is a more general context that includes not only the forest visitors view but also that of the general public. It gives more weight to non-use related values of the forest and to its emotional, spiritual or mystical meaning.

### 5 Conclusions with regard to contributions of future research to multipurpose forest management

Those in charge of urban forest planning and management make their decisions principally on the basis of their professional knowledge. It is planning-specific or derives from natural sciences (biology, silviculture) and focuses mainly on aspects of the forests that result from personal views and experiences. It tends to neglect aspects that may be important to the lay public. Forest managers know the silvicultural and ecological requirements well, but may have only vague information on the meaning of forests to people. They may be inclined to compensate for this lack of knowledge concerning people's perception of forests

- by interpreting their own perceptions as those of the general public, or by
- equating the 'public opinion' constituted through mass-media information and political debates with the perceptions of people.

WILD-ECK and GASSER (1998) show that both ways of compensation may give a distorted and unreliable picture of reality. They indicate that the term or concept 'public opinion' is discussed controversially in the literature (BERGMANN 1994, CHAMPAGNE 1991, HERBST 1993, 1995, LANG and LANG 1983, RUBENSTEIN 1995, VERBA 1996).

Empirical social investigations offer a valuable way of obtaining more reliable information and insights, otherwise undetected, on what the public attributes to forests. Such research promises a new and better basis for judgement. Knowledge gained through empirical social research on forests not only can be, but is power for forest-related decisions. It provides those responsible for the forests with an opportunity for gaining a deeper insight

into the thoughts of the people, and allows for a more adequate reaction to public demands. For planning and forest-related policy in urban areas, the knowledge of empirical findings concerning public demands is of exceptional importance. Open spaces are generally limited and the opportunities for people to escape from man-made influences restricted. Population density in adjacent rural areas is usually high as well (LOESCH 1980). These factors lead to great pressure on urban forests due to the many aspirations and activities of the public.

Social research can be a useful instrument for preventing conflicts concerning forest uses by different groups of the population. It can help to determine which kind of infrastructure (roads, jogging-paths) is desired in which areas, which part of a forest is primarily visited for silence and nature observation and which is dominantly a place for expressional activities. It can show what individuals connect with specific forest practices, whether they are seen in a rather positive or rather negative way, and which of them are likely to be accepted. Better knowledge of the meaning of forests is also a tool for adequate information of the public or for public relation activities.

In conclusion, one may say that empirical social investigations are a relevant and important tool in both the political process and in forest management. Despite many interesting findings from a considerable number of investigations, there are still important unsound areas concerning the meaning of forests in the cities. Secondary analysis of existing data provides opportunities for complementary findings. Future efforts in social-empirical research on the importance of trees and forest in an urban environment should primarily focus on aspects referring to individual life, thinking and practices concerning the role of open and natural space within densely settled areas.

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